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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,875	07/16/2001	Takamitsu Asanuma	110108	1757

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EXAMINER

NGUYEN, TU MINH

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 09/24/2002

11

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/904,875

Applicant(s)

Asanuma et al.

Examiner

Tu M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Sep 16, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, and 5-8 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on Apr 30, 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

1. An Applicant's Amendment filed on September 16, 2002 has been entered.

Claim 5 has been amended; and claims 7 and 8 have been added. Overall, claims 1-8 are pending in this application.

Applicant's arguments with respect to the references applied to reject claims 1-4 in the previous Office Action are deemed persuasive, accordingly, the finality of the rejection mailed on May 6, 2002 is hereby vacated; and a new final rejection is set forth below.

Drawings

2. The amended drawings filed on April 30, 2002 have been approved for entry. Upon allowance of this application, formal drawings with the approved changes must be submitted.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1, 2, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga et al. (U.S. Patent 5,811,364) in view of Matros et al. (U.S. Patent 6,314,722).

Re claims 1 and 5, Suga et al. disclose a device for purifying the exhaust gas of an internal combustion engine, comprising:

- a downstream catalytic converter arranged in the exhaust system, which carries a catalyst (barium) for purifying NO_x; and
- an upstream catalytic converter for purifying NO_x arranged in the exhaust system upstream of the downstream catalytic converter, which carries the catalyst (barium) for purifying NO_x.

Suga et al., however, fail to disclose that the mechanism of purifying NO_x by the upstream and downstream catalytic converters is by absorbing and reducing NO_x; and that the downstream catalyst also has a function as a particulate filter.

As indicated on lines 14-20 of column 3, each of the catalytic converters in Suga et al. is made by coating at least one noble metal and an alkaline earth metal (barium) onto a monolithic carrier. It is widely accepted by those with ordinary skill in the art that a combination of a noble metal and an alkaline earth metal oxidizes and absorbs NO_x from the exhaust gas when the exhaust gas is fuel lean, and releases and reduces the trapped NO_x when the exhaust gas is stoichiometric or fuel rich. Thus, it is obvious to one with ordinary skill in the art that the catalytic converters in Suga et al. purify NO_x in the exhaust gas by absorbing and reducing NO_x.

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As shown in Figure 2, Matros et al. teach that it is conventional in the art to use a catalytic converter (10) that includes a particulate filter (38) and a NO_x catalyst (18H) to purify particulate matter and NO_x in the exhaust gas. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have built in a particulate filter into the downstream catalytic converter of Suga et al. as taught by Matros et al., since the application thereof would have provided an effective means to remove harmful particulate matter from the exhaust gas of internal combustion engines.

Re claim 2, the modified device of Suga et al. further comprises bypassing means (22) to make possible the exhaust gas bypass the downstream catalytic converter located downstream of the upstream catalytic converter.

Re claim 6, in the modified device of Suga et al., the downstream catalytic converter carries an oxygen absorbing agent (cerium oxide (line 19 of column 3) is known as an oxygen absorbing agent).

Re claims 7 and 8, in the modified device of Suga et al., the upstream and downstream catalytic converters purify NO_x by reduction and have an oxidation function (it is widely accepted that the alkaline earth metal in Suga et al. oxidizes NO₂ to yield a nitrate for absorption).

Allowable Subject Matter

5. Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Response to Arguments

6. Applicant's arguments with respect to the references applied in the previous Office Action have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment filed on April 30, 2002 (Paper No. 6) necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Communication

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (703) 308-2833.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (703) 308-2623. The fax phone number for this group is (703) 308-7763.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1148.

Tu M. Nguyen

TMN

Tu M. Nguyen

September 18, 2002

Patent Examiner

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Thomas Denion
THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700